AIR TRANSPORT ASSOCIATION

Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

April 22, 2011

RE: Spectrum Task Force Requests Information on Frequency Bands Identified by NTIA as Potential Broadband Spectrum; ET Docket Number 10-123; FCC Public Notice DA 11-4444

I. INTRODUCTION

The Air Transport Association of America, Inc. (ATA) submits these comments in response to the referenced Public Notice, which requested comment on the steps the Federal Communications Commission (FCC) can take to best promote wireless broadband deployment in the 1695-1710 MHz and 3550-3650 MHz bands recently identified by the National Telecommunications and Information Administration (NTIA) as candidates for accommodating wireless broadband. The FCC is also seeking input to inform ongoing assessments of several additional bands NTIA has identified for potential deployment of wireless broadband. These bands include the 1755-1850 MHz, 4200-4220 MHz and 4380-4400 MHz bands and others identified by NTIA as candidates for commercial use. ATA is the principal trade and service organization of the U.S. scheduled airline industry, and its members[1] account for over ninety percent of the passenger and cargo traffic that U.S. scheduled airlines carry annually. The Public Notice raises important issues regarding aircraft systems, and certain broadband uses it proposes could have far-reaching consequences on the safety of air travel.

II. SUMMARY OF ATA POSITION

Wireless broadband deployment into the identified frequency bands may have an adverse safety effect on both US and foreign air carriers. low range radio or "radar" altimeters (RA) measure altitude above the terrain directly beneath an aircraft, providing the distance between the plane and the ground. These

[1] ATA members are: ABX Air, Air Tran Airways, Alaska Airlines, American Airlines, ASTAR Air Cargo, Atlas Air, Continental Airlines, Delta Air Lines, Evergreen International Airlines, Federal Express Corporation, Hawaiian Airlines, JetBlue Airways, Southwest Airlines, United Airlines, UPS Airlines, and US Airways.
ATA associate members are: Air Canada, Air Jamaica, and Mexicana.

appliances operate in the 4200 to 4400 MHz frequency range. RA systems are installed on most aircraft and all transport category aircraft. They are critical to safe aircraft operation and navigation, providing highly accurate altitude readings to the flight crew when at low altitudes -- generally below 5,000 feet. In nearly all large transports, RA systems also are integrated with auto pilot, auto land, Terrain Awareness and Warning (TAWS) and other systems, providing those systems with precise, real time altitude data. Radio-frequency (RF) interference with RA systems could interrupt or render inaccurate altitude data for pilot displays and these systems, adversely affecting the safe operation and navigation of aircraft. The proposed encroachment into the 4200-4400 MHz band used by RAs could have these effects, either impairing safety and compliance airworthiness standards, or forcing reallocation of the internationally – accepted frequency band for RA systems and replacement of existing RA systems.

A. There has been no impact assessment accomplished to quantify the cost and economic burden that could be forced by the proposed 4200-4220 MHz and 4380-4400 MHz band broadband deployments. If the deployment compromised the performance of RA systems, there would be a significant economic impact of replacing RA systems with new-design RA systems that could operate free from broadband interference in the 4220-4380 MHz band or in a newly assigned band. This action would require placing two to three RAs in each large transport airplane. Using current catalog prices, ATA estimates the cost to replace existing RA systems in 4,225 large transports operated by 20 major US air carriers as $477,500,000. The impact on regional passenger or cargo carriers and on foreign carriers who operate in US airspace would add to this preliminary estimate.

B. Wireless broadband deployment into the identified frequency bands should not be pursued without a rigorous risk assessment and a hazard mitigation plan in place. The ATA and its members agree that wireless broadband deployment into any frequency band spectrum must be made only after every possible step has been taken to ensure the safety of the traveling public. Only after all possible risks and adverse conditions have been identified and understood can a mitigation plan be developed.

III. INTEREST OF ATA

We have information from Mr. David Vacanti, Honeywell International Aerospace Fellow, indicating that encroachment into the 4200-4400 MHz frequency range will have a negative impact on the safe operation of aircraft equipped with RAs. This risk could only be addressed by the replacement of the currently installed system components with new-design RA systems that would operate in that portion of the 4200-4400 MHz band not saturated by broadband Wi-Fi interference or other bands altogether. In his white

paper, also submitted as comment to this docket, Mr. Vacanti describes how the proposed encroachment would degrade RA performance sufficiently to either necessitate replacement of existing RAs with redesigned systems capable of operating redesign within 4220-4380 MHz or within some other band.

III. REGULATORY BACKGROUND

Radio altimeters in all commercial transport aircraft are required to be certificated at a Safety Criticality Rating of Level A. This safety level is defined by the FAA DO-178B / DO-254 as: "*Where a software/hardware failure would cause and or contribute to a catastrophic failure of the aircraft flight control systems".* Incorrect or absent altitude data from the RA system, particularly to the auto land or TAWS equipment, certainly could contribute to incorrect flight control inputs and catastrophic loss of the aircraft.

IV. CONCLUSTION

We do not believe that the proposed deployment in the 4200-4220 MHz and 4380-4400 MHz bands should go forward. We believe any wireless broadband deployment into frequency bands that are already in use by equipment designed for the safe operation and navigation of transport aircraft should be pursued only after appropriate testing and demonstrations show that risks and hazards associated have been eliminated. With respect to the 4200-4400 MHz band we recommend that, before further action, full scale flight testing be performed to demonstrate whether the proposed deployment is compatible with existing RA systems.

We appreciate this opportunity to provide input on this matter. Please let me know if you have any questions.

Sincerely,

Joe White
Managing Director,
Engineering & Maintenance

AIR TRANSPORT ASSOCIATION OF AMERICA, INC.